



Next Club Meeting Sunday 14th April Belviour Guides Hall 6 Silva Drive West Wodonga

Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards

Members are encouraged to turn up a little earlier for clubroom maintenance

Call in Via VK3RWO, 146.975, 123 Hz tone



Gary VK2VU in full flight on HF, working DX on the club first portable John Moyle Field Day
Four keen operators carried all the gear up to the top of the mountain to work a six hour block
Bands worked were HF 80 & 40 meters, VHF 2 meters, UHF 70cm & 23cm

NEVARC FIRST JOHN MOYLE FIELD DAY 2019

DEMONSTRATION OF CAVITIES AT THE MARCH MEETING

NEVARC Club Profile

2

7

10

NEVARC FIRST JOHN MOYLE FIELD DAY 2019

On Saturday 16th March, a party of operators held the first John Moyle Field Day for NEVARC.

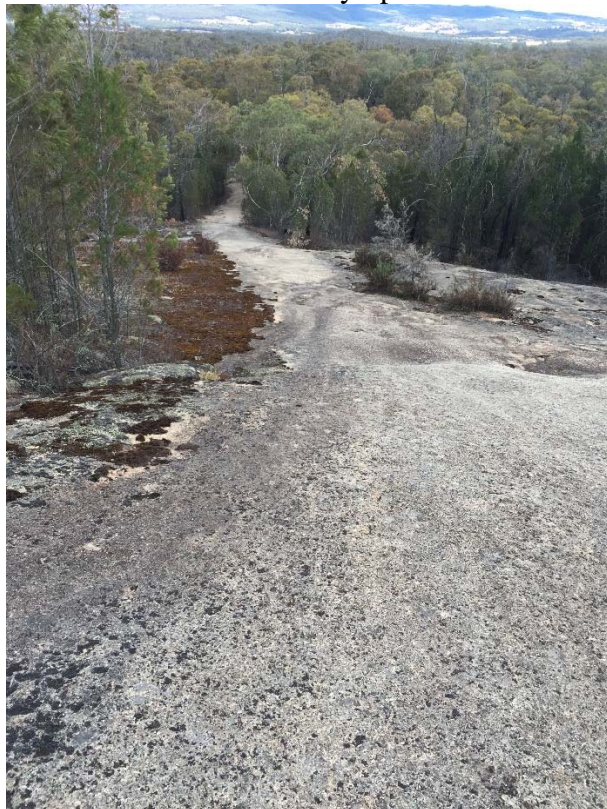
At a very quiet scenic outlook a portable station was setup.

As always a lot of planning goes into a day like this and for a first attempt only a few items that would have helped, but were survived without, the only items missed, in the main coax adapter connectors.

The packhorse of the day would have to be Matt, walking up the hill 10+ times carrying gear for the portable station setup. The 300 meter track was not exactly flat ground all the way. Matt dragged a 40 kg truck battery up to the top for everyone to use as power. The battery certainly lasted, it would have powered a 24 hour stint.



A very nice view, but a bit rough when both arms are carrying radios and masts all the way up and down...



Matt and Gary enjoy a short rest before the start of the action





The truck battery Matt lugged up the hill and back to his car again at the end of the day... all 40 kilograms of it... these guys are keen



Tom, VK3NXT helps erect the dipole for HF

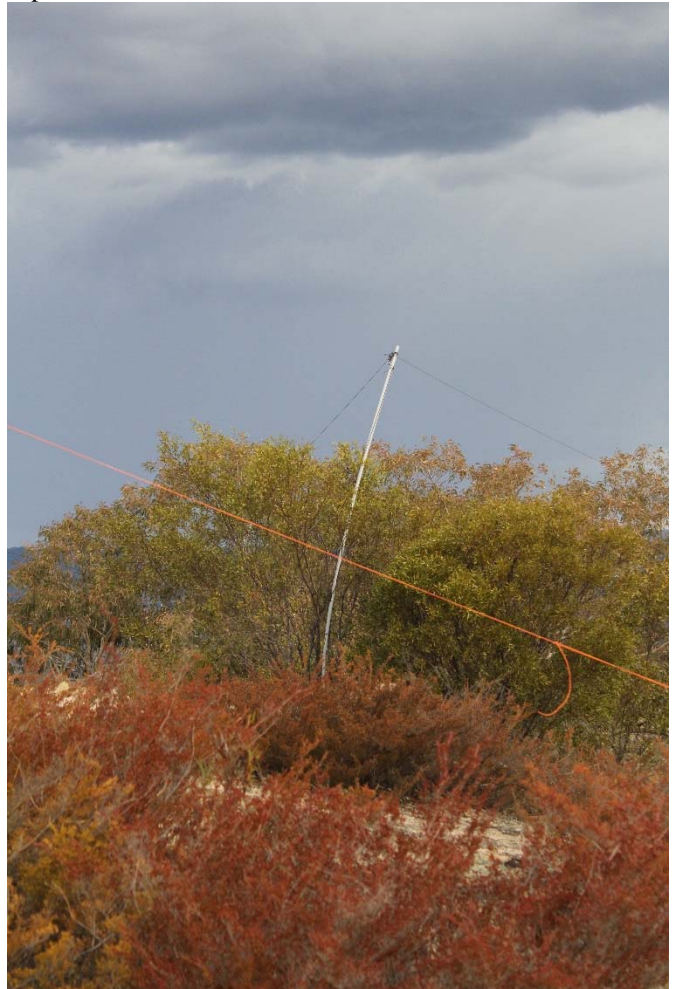


Just part of the view, perfect weather the whole day, only cloudy near the end, with some wind when packing up



Gary's home brew 2 meter beam, compact and sturdy, just what you need portable, 5 Element LFA (Loop Fed Array) Quad 144.1

HF light wire dipoles





A trolley holds the end of the HF dipole twine



Wire hangs off the HF dipole after a quick VSWR adjustment!



Mick VK3CH IC9100 rig covering VHF/UHF with an X6000 vertical. A better seat to be packed next time...





Matt attending the BBQ



Portable Shade

Getting contacts on 2 meters, 70cm and 23cm proved a struggle, using verticals meant not having to know where and when to point to call CQ, but with less gain to use. SSB seemed the logical choice for distance. But the HF bands provided all the contacts and tuning across the bands had heaps of stations call CQ Contest, but we did hear a few saying I just want a chat, they were NOT part of the contest! Gary put his new IC-7300 HF/50Mhz SDR All Mode Transceiver to the test and it performed very well.

I am tempted to get one!

These bite

The wind picked up at times, but not enough to be really annoying.

Without the shade cover we would have got sunburnt.

The big sand-flies bite, but they are very clumsy and seem to crash into you when they fly around and are easily brushed away. As the light dwindled later in the day, all was packed up without getting rained upon. Mick has the location in the mobile phone for next time to save trying to find it as Google Maps does not always know the bush as well as the city locations.

The solar panel electronics caused some QRM on HF, so it was disconnected, the truck battery did not require solar charging.

The John Moyle Field Day contest is run each year in memory of the late John Moyle who was a long term editor of the Wireless Weekly, (later Radio & Hobbies - later Radio Television & Hobbies) from 1947 until his untimely death in 1960. He served in the RAAF with distinction and was responsible for a number of innovative solutions to keeping radio and radar equipment working under difficult wartime and working conditions.

The WIA decided that a suitable long term memorial to John Moyle would be a Field Day with a focus on portable or field operation. The contest has been conducted annually ever since.

NEVARC will be back next year, with the lessons learnt to improve the day applied to next year's plans.

Bands above 40m provided hardly any contacts. Matt made 14 trips up the hill. Dragging a battery, stove, marquee, various radios and bits. We did 4 hours for 96 points.

Things to improve on next year will be to do HF from the carpark. Take VHF/UHF up the hill and test the bands. If no good bring it back down the hill. Take a smaller battery and make sure people know prior that we are operating on the day and what times.

Remember, if you can't come out on the day, you can always put out a call to VK3ANE.

~Mick VK3CH



DEMONSTRATION OF CAVITIES AT THE MARCH MEETING

For the March meeting of NEVARC, Matt, VK3VS had a basic demonstration of cavities and how they work, and are used on a repeater system.

He bought with him a spectrum analyser with a built in tracking generator.
For the tech buffs, it is an IFR 2398, with all the bells and whistles back in its day.

Bandpass cavity

Matt started out by showing a cavity in its default configuration.
This particular cavity is 18 inches by 6 inches. It is set up as a band pass cavity, meaning 2 ports, 2 coupling loops.

It was shown on the spectrum analyser that it had a nice bandpass curve, with about 15db roll off at 600 kHz either side of the centre frequency, with the centre frequency being adjusted by moving the centre plunger

Then Matt demonstrated that by changing the angle of the coupling loop in relation to the centre plunger, the insertion loss changed, in correlation with the bandpass roll off.

The higher insertion loss, the sharper the bandpass curve (or Q) of the cavity.

This was explained, when tuning cavities, you have to find a happy medium between insertion loss and bandpass, or isolation figures.

Notch cavity

Matt then re-configured the bandpass cavity into a notch cavity.
This involved removing one of the coupling loops, and installing a T-piece into the connector onto one loop.

This showed there was a 20dB notch, again the frequency of the notch is adjustable from the centre plunger.

Again, it was demonstrated that by turning the loop to a different angle in relation to the centre plunger that the insertion loss increased and the notch became steeper.

The “Matt Special”

After that, the standard cavity was put aside and a “Matt special” cavity was bought out.

This cavity has a matt special coupling loop on it.
Matt described how over many experiments that he has come to the conclusion that how he has set up these loops gives the best correlation between insertion loss and cavity efficiency.

The idea behind the Matt special was to use commonly available parts.
The parts used were some copper tubing and threaded rod from Bunnings, some enamelled copper wire from Jaycar, and some scrap double sided PCB.

The Matt special is achieved by using 2 connectors spaced apart at the same measurement of the plunger to the side of the can, placed half way between the plunger and the side of the can.
Then a huge capacitor is made from the copper pipe and forms half of the coupling loop. Sounds weird, and is.

This cavity now has two adjustments.
The centre plunger is adjusted for the bandpass, and the second adjustment is how far from the centre frequency a notch appears.

With this setup 33dB of isolation with 0.2dB insertion loss was demonstrated at a 1.6 MHz split.
These figures are achievable up to 400 kHz separation.

So, by putting 3 cavities together, the magical figure of 100dB of isolation can be achieved with around 1dB of insertion loss.
This is required for a 2m repeater to operate with NO transmitter noise, or de-sense appearing on the receiver.

Some leaves could be taken out of this book locally.....!

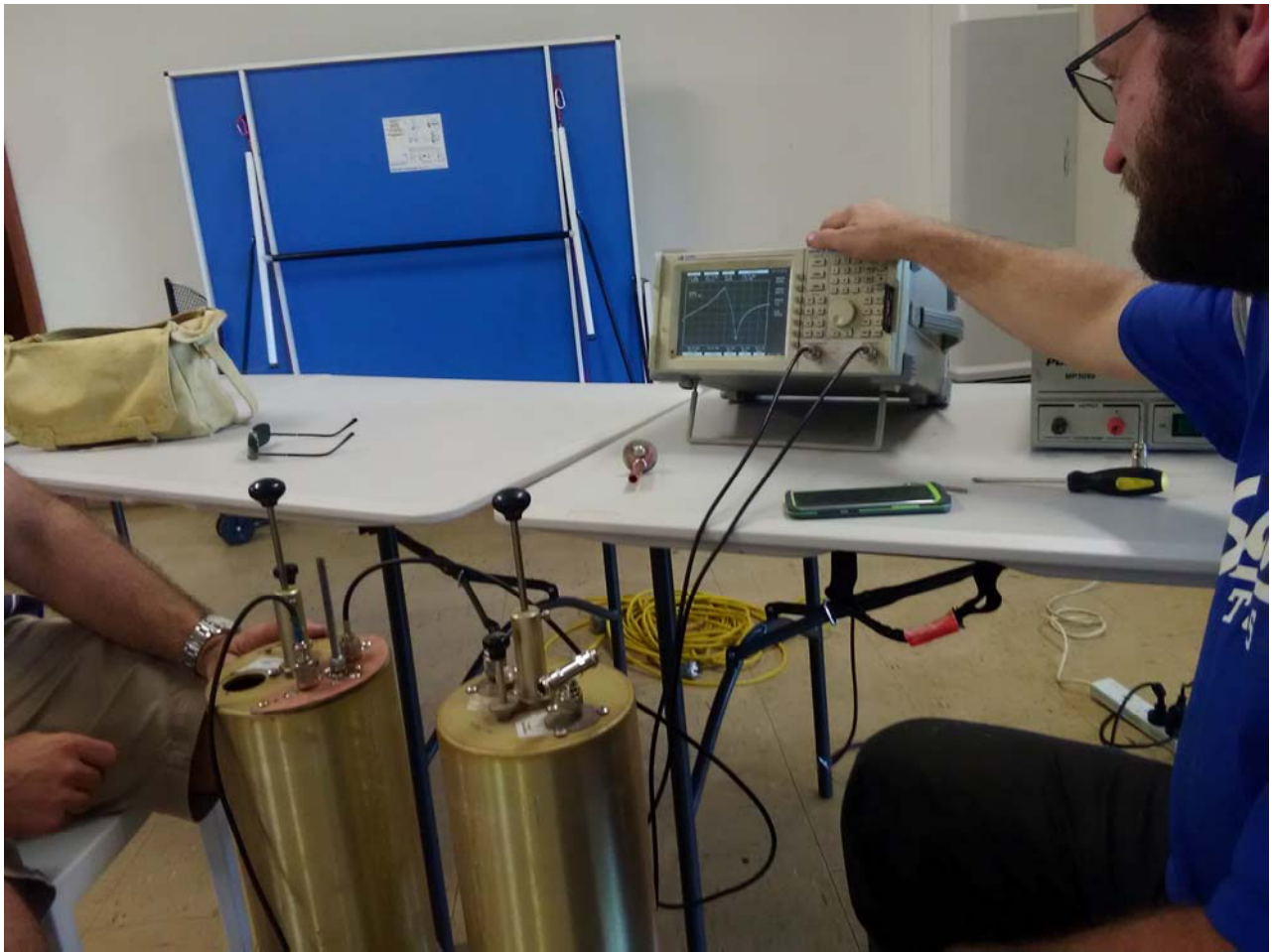


Figure 1: Hooked up to the Matt Special

Figure 2: Matt Special on the Left, Notch on the right



President, VK2VU, Gary
Vice President, Tom VK3NXT
Secretary, VK2FKLR, Kathleen
Treasurer, Amy



NEVARC CLUB PROFILE

History

The North East Victoria Amateur Radio Club (NEVARC) formed in 2014.
As of the 7th August 2014, Incorporated, Registered Incorporation number A0061589C.
NEVARC is an affiliated club of the Wireless Institute of Australia.

Meetings

Meetings details are on the club website, the Second Sunday of every month, check for latest scheduled details.
Meetings held at the Belviour Guides Hall, 6 Silva Drive West Wodonga.
Meetings commence with a BBQ (with a donation tin for meat) at 12pm with meeting afterwards.
Members are encouraged to turn up a little earlier for clubroom maintenance.
Call in Via VK3RWO, 146.975, 123 Hz tone.

VK3ANE NETS

HF

7.095 MHz Monday, Wednesday, Friday - 10am Local time
3.622 MHz Wednesday - 8.30pm Local time

VHF

VK3RWO Repeater 146.975 MHz – Monday - 8pm Local time
All nets are hosted by Ron Hanel VK3AHR using the club callsign VK3ANE

Benefits

To provide the opportunity for Amateur Radio Operators and Short Wave Listeners to enhance their hobby through interaction with other Amateur Radio Operators and Short Wave Listeners. Free technology and related presentations, sponsored construction activities, discounted (and sometimes free) equipment, network of likeminded radio and electronics enthusiasts. Excellent club facilities and environment, ample car parking.

Website: www.nevarc.org.au

Postal: NEVARC Secretary
PO Box 69
Wahgunyah Vic 3683

All editors' comments and other opinions in submitted articles may not always represent the opinions of the committee or the members of NEVARC, but published in spirit, to promote interest and active discussion on club activities and the promotion of Amateur Radio. Contributions to NEVARC News are always welcome from members.

Email attachments of Word™, Plain Text, Excel™, PDF™ and JPG are all acceptable.

You can post material to the Post Office Box address at the top of this page, or email magazine@nevarc.org.au

Please include a stamped self-addressed envelope if you require your submission notes returned.

Email attachments not to exceed 5 Mb in file size. If you have more than 5 Mb, then send it split, in several emails to us.

Attachments of (or thought to be) executable code or virulently affected emails will not be opened.

Other persons or radio clubs may edit or copy out such as they like from the magazine but a reference to NEVARC News is appreciated, except copyrighted (©) material or as otherwise indicated.

Other articles credited to outside sources should ask for their permission if they are used.

While we strive to be accurate, no responsibility taken for errors, omissions, or other perceived deficiencies, in respect of information contained in technical or other articles.

Any dates, times and locations given for upcoming events please check with a reliable source closer to the event.

This is particularly true for pre-planned outdoor activities affected by adverse weather etc.

The club website [http://nevarc.org.au/](http://nevarc.org.au) has current information on planned events and scheduled meeting dates.

You can get the WIA News sent to your inbox each week by simply clicking a link and entering your email address found at www.wia.org.au The links for either text email or MP3 voice files are there as well as Podcasts and Twitter. This WIA service is FREE.